Space Weather Forecast

Issued on Monday 3 March 2025 at 00:09 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor/Moderate geomagnetic storm (G1/G2) late Tuesday 04 March and through UTC midweek.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Low, with a peak low-ranking Common class X-ray flare at 02/0938UTC from a small, but rapidly developing sunspot region in the southeast.

The facing side of the Sun now features around seven sunspot regions, with many having faded away in situ. There are perhaps five main sunspot regions now populating the Sun, and the majority of these have shown some increase in complexity in the past UTC day, albeit to no notable result in flare activity thus far.

No Earth-directed Coronal Mass Ejections (CMEs) were identified in available satellite imagery in the period. The only notable CME in the late UTC morning was determined to be high latitude (far northwest) and far-sided, i.e. to no effect at Earth.

Solar Wind / Geomagnetic Activity: Solar winds are indicative of a continuing waning connection to a strong 'coronal hole' fast wind.

Solar wind speeds have been on a declining trend, gradually waning from strong levels to end the 24 hours at slightly elevated levels. The number of particles comprising the solar wind and their associated magnetic field were both small-scale and unremarkable.

The net result of the above solar wind measures was provisionally mainly quiet geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity carries a daily chance of becoming Moderate, with isolated Moderate-class X-ray flares. This may rise slightly into the start of the new UTC week as some sunspot regions potentially return over the eastern solar horizon.

Solar Wind / Geomagnetic Activity: A CME from the 01/1730UTC 'filament eruption' (arc of plasma) from the southeast of the Sun may affect Earth as a glancing blow around 04/1900UTC.

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This is the only CME in the forecast.

Otherwise, fast wind influence from a coronal hole is expected to continue to wane, with slightly elevated solar winds soon easing to background prior to any CME arrival. This is the only coronal hole in the forecast.

Geomagnetic activity is expected to be mostly quiet initially until later Tuesday 04 March, whereupon the aforementioned CME may bring a chance of minor geomagnetic storm G1 to end this UTC day and on through midweek UTC. Activity should lessen once again later in the UTC working week.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	20	30	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	30	40	40	40
Very Active	R3-R5 (X Class)	No	1	1	1	1

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Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	2	2	5	5
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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